Credit and Capital Markets, Volume 56, Issue 1, pp. 103 – 118
Report

German FinTech Companies: A Market Overview and Volume Estimates

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Abstract

The FinTech market in Germany is a dynamic and growing field that is difficult to observe in its entirety. This report provides a hand-collected market overview of the FinTech market in Germany, as well as an application case in terms of volume estimates for the financing and asset management segments through December 2021. The data includes various verified characteristics of 978 unique companies that can be classified under the financial technology sector and operate in Germany. Each observation represents a company with 24 variables, including name, address, legal form, founders with corresponding LinkedIn accounts, registration number or company ID, assignment to FinTech segments and sub-segments, banking cooperation, URL address, local court, former name, operating status. We provide the description of the variables as well as a taxonomy to categorize FinTechs. The dataset contains both established companies and startups and presents valuable information for researchers, practitioners and also regulators.

Keywords: FinTech, Germany, Start-Up, Financial Technology, Digital Finance, Entrepreneurship, Supervision

JEL Classification: G10, G20, G28, K20, L81, M13

I. Introduction

The importance and market volumes of FinTech companies (FinTechs) have been growing for a number of years, making FinTechs a very relevant subject in the academic context as well as for practitioners and regulators. Due to the predominantly digital nature of FinTechs, these companies are often only observa-

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The authors gratefully acknowledge the financial support by the Deutsche Bundesbank. Furthermore, we would like to thank Lars Hornuf, Matthias Schmitt, Lena Wannenmacher and Martina Weber for previous collaboration on this research topic.

ble through their web presence. Likewise, they are not monitored by any regulator, at least not in the early stage, which is the reason why there have been few centralized captures or aggregated industry reports. This report is divided into two parts. First, we describe the companies and variables included in our aggregated German FinTech database as of December 2021. Using the German FinTech list by *Dorfleitner* et al. (2017) as a starting point, we have collected aggregated information on 978 FinTech-related companies that are or were active in Germany. Second, as an application case of the provided data, we present market volume estimates for the FinTech segments of financing and asset management until December 2021.

II. Data Description

The dataset is accessible on the Mendeley Data repository (*Dorfleitner* et al., 2022). The data can be downloaded from the URL:
https://doi.org/10.17632/438ytjyzxk.2 in an open access format.

1. Data Collection

Our data were acquired in the following manner. The starting point was the FinTech list of *Dorfleitner* et al. (2017). This list already consists of hand-collected data over the years 2015 and 2016. In a similar vein, we continuously collected data until December 2021 using specific and topic-related databases (Crunchbase, BvD Dafne, German Company Register, Trade Register Excerpts), FinTech and bank websites as well as with structural Google searches. The entries and properties, specifically the operating status, were checked in regular time-intervals throughout the collection process over the years. The aim of the collection procedure was to find and identify all relevant FinTechs operating in Germany with a structured approach. Different databases and websites were used to obtain an overview of the market. The dataset was repeatedly updated and verified throughout the years within this process. An association to the segment of operations was conducted. Through structured Google searches the operating status was checked.

2. Variables Description

Table 1 shows the overview of all variables in the dataset and describes the type and content of each variable. Note that for some of the 978 FinTech companies, some variables have missing values, which are marked NA.

Table 1

Variables Description

Variable	*Type*	*Description*
ID	Numeric	Unique identifier for each FinTech
Name	Character	Name of each FinTech
Status	Binary	FinTech is active up until 31 December 2021
Original German	Binary	1: FinTech is founded originally in Germany; 0: just operating in Germany
Founding Year	Numeric	Year the FinTech was founded
Founder	Character	Name of the founder or founding company, either name of a natural person or company name, if several founders separated by
Founder (LinkedIn)	HTML	Link to the LinkedIn Profile, separated by
Legal Name	Character	Name of the FinTech according to the company register
Legal Form	Character	Legal form of the FinTech according to the company register
Street	Character	Street name of the FinTech according to the company register
Postal Code	Numeric	Postal code of the FinTech according to the company register
City	Character	City of the FinTech according to the company register
Country	Character	Country of the FinTech according to the company register
Register Number / Company ID / LEI	Character	Register number/company ID/LEI of the FinTech
Segment	Categorical	Association to an operating segment according to Fig. 1 below and description below (according to Dorfleitner et al., 2017)
Subsegment	Categorical	Association to an operating subsegment according to Fig. 1 below and description below (according to Dorfleitner et al., 2017)
Bank Cooperation	Binary	1: There exists a cooperation with a private/commercial bank; 0: otherwise
Homepage	HTML	Homepage of the FinTech
E-Mail	Character	E-Mail address of the FinTech

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(Table 1 continued)

Variable	*Type*	*Description*
Insolvency	Binary	1: FinTech is undergoing insolvency proceedings; 0: otherwise
Liquidation	Binary	1: FinTech has been liquidated; 0: otherwise
Date of Inactivity	Date	Date of cessation or date of opening insolvency proceeding or date of liquidation
Local court	Character	Local court in Germany of the FinTech, if the company is resident in Germany
Former Name	Character	Former name(s) of the FinTech, if the company was renamed

The classification of FinTechs into segments and subsegments is generally based on the taxonomy of *Dorfleitner* et al. (2017), pp. 6 – 10, which is displayed in Figure 1. In order to take account of more recent developments in the market, we are also including the subsegment "BigTechs" for the payment services of BigTech companies such as Amazon Pay, ApplePay and Google Pay under the segment "Payments". In addition, we assign FinTechs operating in the field of blockchain and distributed ledger technology to the "Blockchain and cryptocurrencies" subsegment, which is subordinate to the "Payments" segment, although not all of them have business activities related to payment services. Companies offering services in the field of "RegTech" (Regulatory Technology) are only considered if there is a clear intersection with financial services and thus FinTech. They are assigned to a (sub-)segment according to the specific service provided, this is in the case of our dataset mostly "Technology, IT and Infrastructure" with services e. g., to detect financial fraud or ID-based for KYC purposes.

Our dataset was created to identify all relevant FinTechs operating in Germany. Therefore, a structured approach was used combining different databases and websites, as listed above, to obtain and verify a possibly complete overview of the market. The dataset was repeatedly updated and verified throughout the years within this process. Furthermore, each FinTech was assigned to one (sub-) segment in which its main operations take place. Through structured Google searches the operating status was checked on a regular basis.

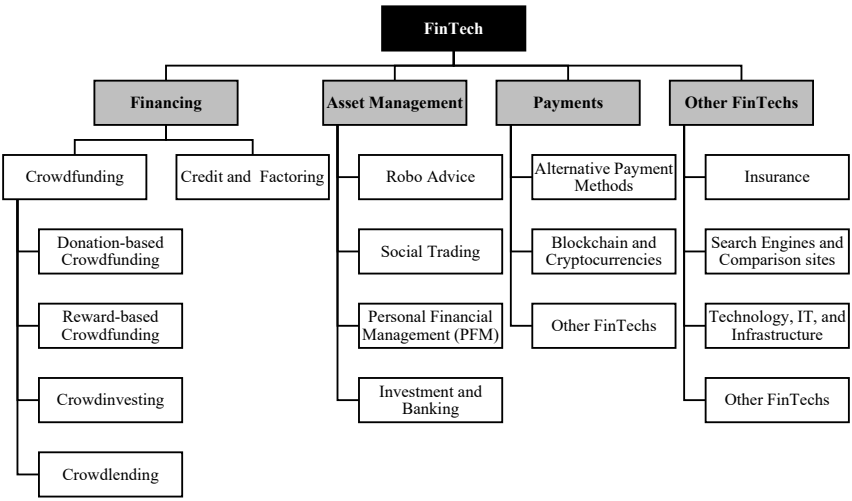

Figure 1: Taxonomy of FinTech companies according to Dorfleitner et al. (2017), p. 7.

3. Descriptive Statistics

Figures 2 and 3 show the number of companies identified in the various segments according to the taxonomy of *Dorfleitner* et al. (2017). It should be noted that there is no uniform distribution across the various segments. For example, at the end of 2021, most FinTechs are to be found in the payments segment with a number of 191, followed by the broad technology, IT and infrastructure segment with 127 companies. A progressive maturation of companies can be observed across all segments. At the same time, it should be emphasized at this point that the number of companies does not reflect the market volumes of the individual segments.

Figure 3 differentiates within the various segments based on the activity status of the FinTechs. The dataset also includes these inactive companies to ensure a survivorship bias-free dataset for further studies. The dataset contains an unknown number of companies that can still be reached via a website, but probably no longer have any business activity. Overall, it is noticeable that especially in the subsegments crowdinvesting and donation- and reward-based crowdfunding the highest shares of inactive companies were found. We also note that, in contrast to the venture capital industry, a large proportion of FinTechs are still active. Therefore, we additionally display in Figure 4 the average age per subsegment and differentiate between active and inactive FinTechs, whereby we can only calculate the age for 110 out of 172 inactive companies because of data availability. We cannot observe in any subsegment that the average age of active

companies is close to that of inactive companies, which would explain the low number of inactive companies compared to the venture capital sector.

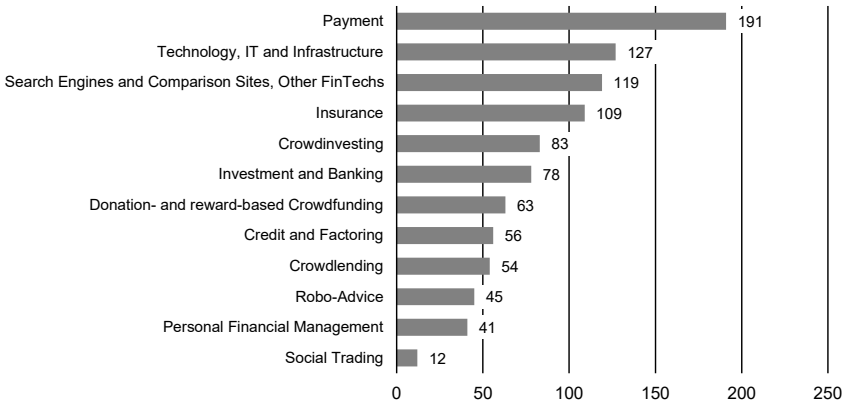

Figure 2: Absolute frequency of subsegments in our dataset

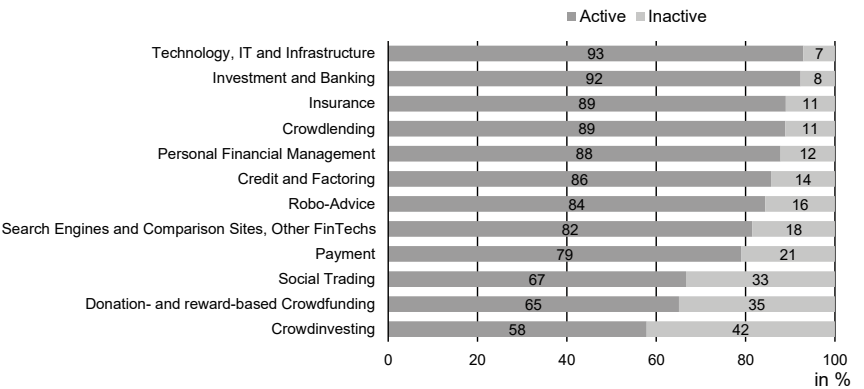

Figure 3: Relative frequency of active and inactive FinTechs in each subsegment

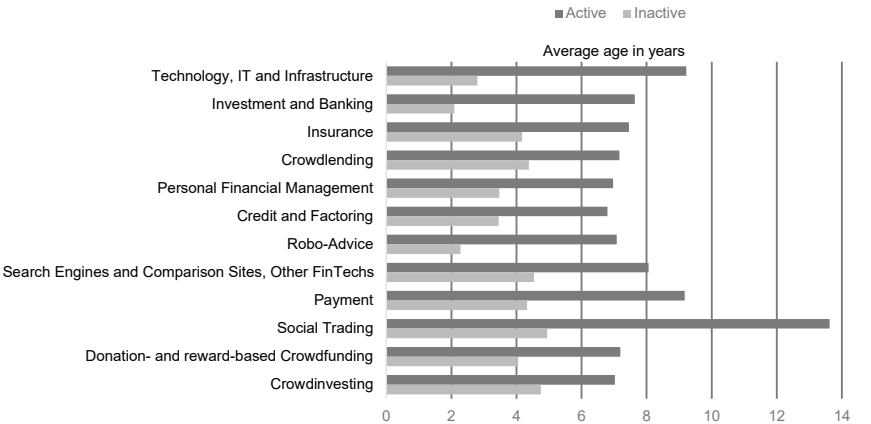

Figure 4: Age per subsegment in comparison for active and inactive FinTechs

4. Previous Use of the Data in Research

The first version of the dataset and the categorization is based on *Dorfleitner* et al. (2017). Afterwards, estimations for the German market volume were performed for several years and segments, see for instance *Dorfleitner* et al. (2020) and *Dorfleitner* and *Hornuf* (2023). Based on the observed German FinTech companies, empirical studies related to data protection and the General Data Protection Regulation matched with the privacy policies were performed with simple descriptives by *Dorfleitner* and *Hornuf* (2019) or with the help of textual data mining and in multivariate analysis by *Dorfleitner* et al. (2023).

III. Application Case of the Dataset: Estimation of Market Volumes of German FinTech Segments

In this section, we present the estimation of the market volumes of German FinTechs as an application case for the dataset presented above. Based on the taxonomy of *Dorfleitner* et al. (2017), we focus on the financing and asset management segment. We exclude the payment segment as we do not have access to the transaction volumes of large players such as Paypal or ApplePay, which account for the majority of the market share in this segment. In addition, we exclude the Other FinTechs segment as for these companies data on market volumes cannot be collected in a comparable way.

To this end, we estimate the market volumes of 434 FinTechs, of which 341 are still active. To estimate the market volumes for the year 2021 in each subseg-

ment, we consider those three to five companies that had the highest market shares in 2020 and estimate their market volume in 2021 with the estimation and research techniques displayed in *Dorfleitner* et al. (2017), chapter 3, or *Dorfleitner* et al. (2020). The resulting relative market volume increase of those market leaders is then applied to the total 2020 subsegment figure as published by *Dorfleitner* and *Hornuf* (2023) in order to obtain a total market volume estimate for 2021.

Market volumes in all financing subsegments are supposed to represent *transaction volumes*, i. e. money raised, while market volumes in the Asset Management segment are meant to be value of money invested (in the sense of assets under management) by the FinTechs. Both specifications are in line with the mentioned literature, which addresses the same issue for the years before 2021.

Figure 5 presents the market volume development over time in the donation- and reward-based crowdfunding subsegment. In reward-based crowdfunding, investors receive a non-monetary consideration from the FinTechs for their financial support of a project which in many cases serves as a pre-financing of the products (*Mollick*, 2014). This can be of a purely non-material nature, for example in the form of a naming, but can also include material counter-values, such as the delivery of a product to be developed. Even if some platforms define a thematic focus, such as the mediation of regional, sustainable or sports-related projects, the intended use for the collected capital is often very different. Other platforms do not specialize in specific topics. Donation-based crowdfunding is characterized by the fact that the capital providers receive no or, in turn, only an ideal consideration for their financial contribution. Due to the operational over-

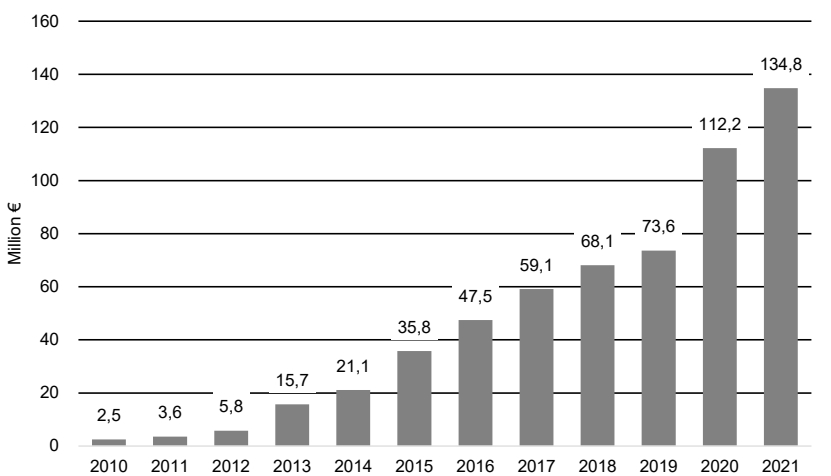

Figure 5: Market volumes of the subsegments donation- and reward-based crowdfunding over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2021)

lap between the two subtypes of donation-based and consideration-based crowdfunding, the presentation of market volumes is summarized. While there still is a relative growth of roughly 20 per cent from 2020 to 2021, the absolute figures are still small. Nevertheless, this segment has seen significant growth during the covid-19 pandemic, as many individuals in their local area have supported small businesses, restaurants, bars, and cultural venues with donations. The German market leader which is originally German is the donation-based platform *Betterplace*, followed by *Startnext*, the largest non-original German platform *Kickstarter*, *Viele Schaffen Mehr* and *Indiegogo*.

Within the crowdinvesting subsegment, investors often receive an equity-like investment in the form of profit participation rights, dormant equity holdings, participatory loans or subordinated loans. They therefore participate financially in the future development of a company at the end of the term (*Hainz* et al. 2017; 2019). Note that, unlike in many other countries, in Germany crowdinvesting is not equity-based crowdfunding but rather financing through mezzanine forms such as junior debt. The market volume in the subsegment crowdinvesting (Figure 6) has experienced a decline in 2020 because of the covid-19 pandemic, which led to some distortions in the market. However, the crowdinvesting subsegment has recovered and reached an all-time high of 522,3 million EUR in 2021 with a growth rate of 40 per cent with respect to 2020. For crowdinvesting, the German market leader is *Exporo*, followed by *Bergfuerst*, *Companisto, Wiwin*, *SeedMatch*, *Zinsbaustein*, *Engel & Völkers, EstateGuru* and the non-German platform *Seedrs*.

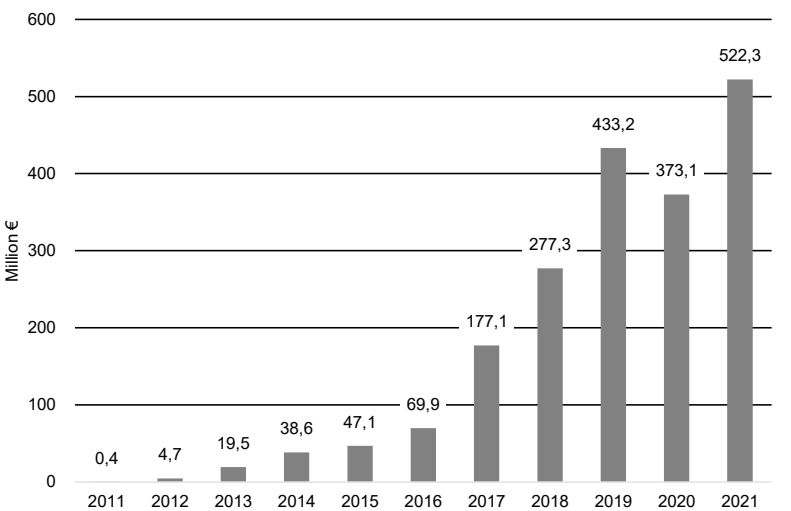

Figure 6: Market volume of the subsegment crowdinvesting over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2020 and 2021)

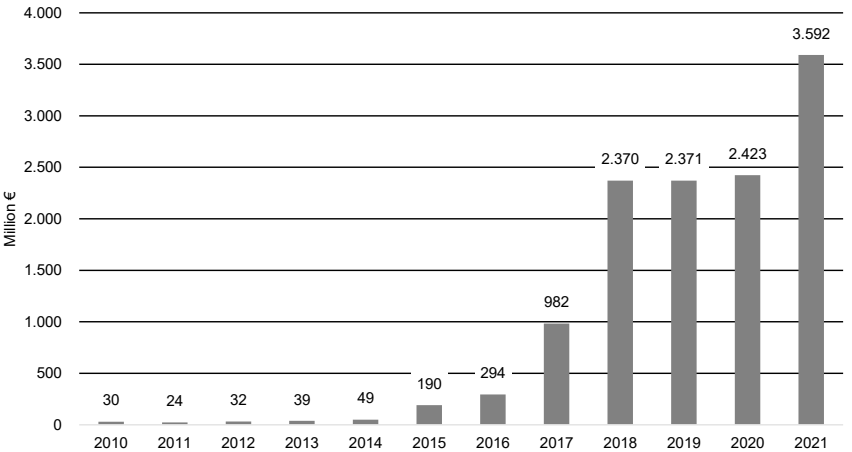

Figure 7: Market volume of the subsegment crowdlending over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2021)

The segment of crowdlending (Figure 7) is characterized by the fact that the capital providers receive predefined annuity payments immediately after financing in exchange for providing the financial resources. Investors and borrowers are either private individuals or companies. FinTechs merely act as intermediaries (*Lee* and *Shin*, 2018). The actual lending is handled by a partner bank. After a stagnation phase during the years 2018 until 2020 this segment sees now considerable growth. The market leader is the non-German platform *Loanboox* with approx. 2 billion EUR to which the largest part of the growth in 2021 can be attributed, followed by the German platform *Auxmoney*, *Creditshelf* and the Latvian platform *Mintos*.

Figure 8 now shows the aggregate volumes of the crowdlending, crowdinvesting and donation and reward-based crowdfunding segments with 4,249 billion, with crowdlending accounting for both the largest percentage share and the most dynamic growth.

The *Credit and Factoring* subsegment in Figure 9 includes FinTechs that act purely as an online alternative to traditional financing by a bank. Unlike the previous segments, however, the funds are not provided by the crowd. This form of financing is made available to both private individuals and companies (*Dorfleitner* et al., 2017). Different types of financing can be distinguished, such as traditional loans, online loans, installment loans, express loans or loans for financing the purchase of goods and credit-like factoring. Factoring, in particular, appears to be growing in popularity after being an already large market in which FinTechs provide low entry barriers and funding due to digitization and can

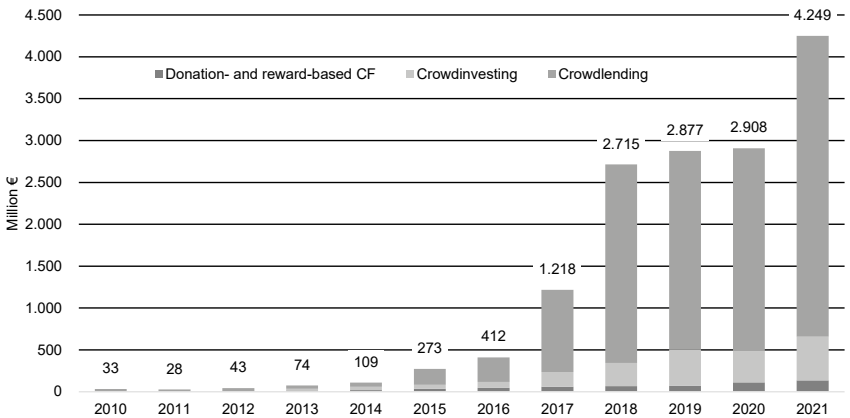

Figure 8: Market volume of the segment crowdfunding over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2020 and 2021)

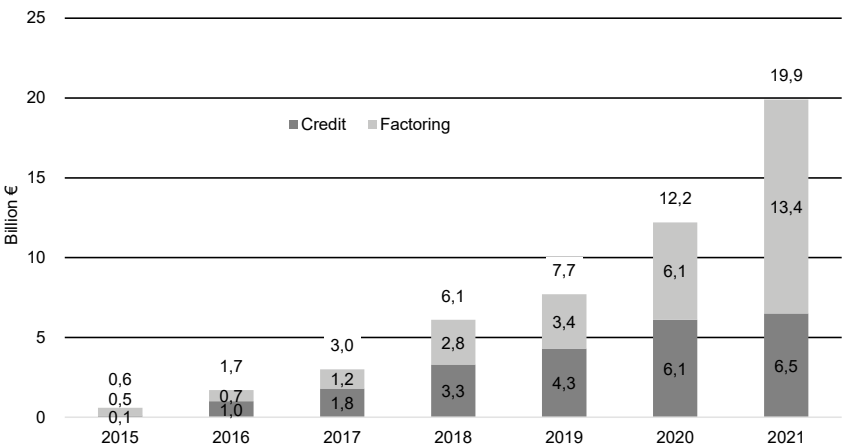

Figure 9: Market volume of the subsegment credit and factoring over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2021)

take market shares from traditional factoring service providers. The subsegment clearly distinguishes FinTechs from alternative distribution channels of traditional financial intermediaries. If a FinTech is acquired by a bank or no longer operates under its own name, it becomes inactive in our sample. However, we cannot completely rule out the possibility that the FinTech only offers a platform and forwards the volume to traditional financial intermediaries in the background. The largest player on the German market for factoring is *CRX Market*

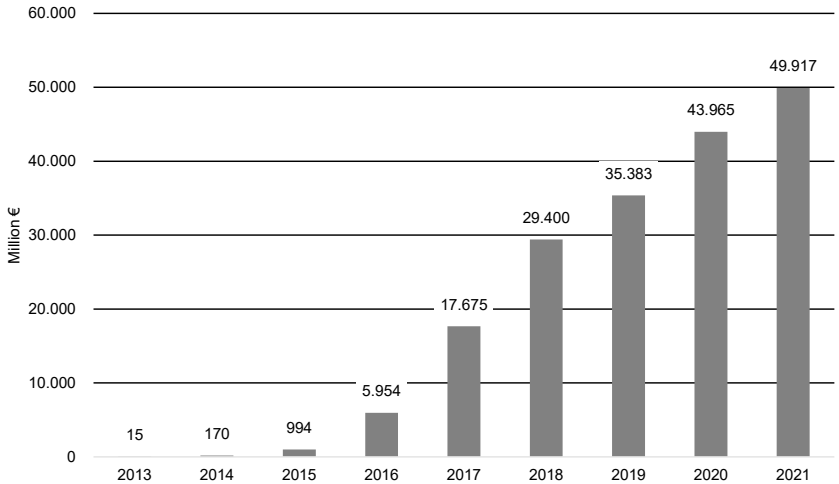

Figure 10: Market volume of the subsegment investment and banking over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2021)

and for credits is *Smava*, followed by *Compeon*, *Aifinyo Factoring* and *Aifinyo Finetrading*.

In the investment and banking subsegment, FinTechs focus on traditional banking services such as checking accounts, but typically with more user-friendly functionalities and without cost-driving branch networks. Figure 10 shows a linear growth trend over the years reaching a maximum volume of 49.917 million in the year 2021. The largest FinTechs in the subsegment are *Raisin* (in Germany *Weltsparen*), *Deposit Solutions*, *Flatex*, *N26,* and *Fidor Bank*.

Social trading is a combination of features of online brokers and social networks where a user can follow the trading strategy of another user, which goes so far that the trades can be automatically copied (*Glaser* and *Risius*, 2018). The investment strategies use different instruments, such as stocks, exchange-traded funds (ETFs), contracts for difference (CFDs), forex, commodities or cryptocurrencies, depending on the platform. As Figure 11 shows, the subsegment of social trading has shown great growth dynamics in recent years. This could be due to the increasing popularity of equity investments in the stock market during the Covid-19 pandemic, as similar dynamics can also be observed in the subsegment robo advice (see Figure 12). The market leader on the German market is the Austrian platform *Wikifolio* with a market share of around 75 per cent driving growth and volume in this subsegment, followed by *eToro* and *NagaTrader*.

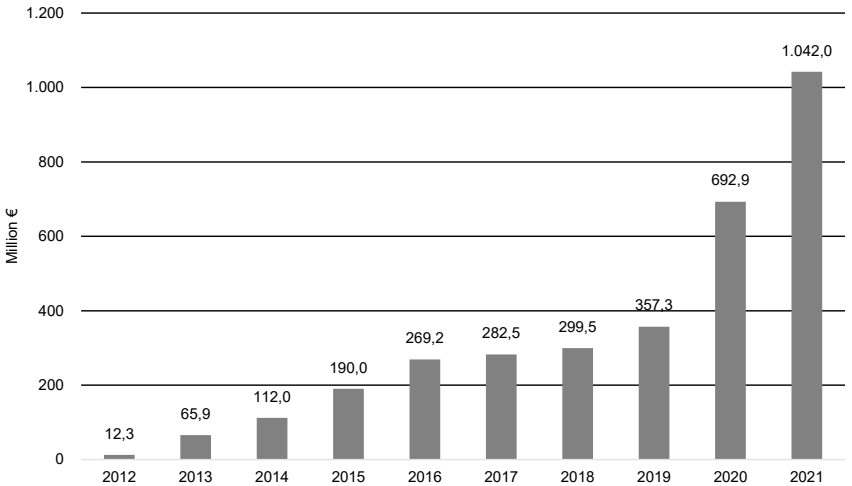

Figure 11: Market volume of the subsegment social trading over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2021)

FinTechs which offer digital and increasingly automated asset management via a platform are assigned to the robo advice subsegment. The personal investment preferences and risk appetite of the investors are taken into account by an algorithm, which allocates the invested capital accordingly. By using robo advisors, investors can achieve diversification effects mostly accompanied by lower volatility and higher returns (*D'Acunto* et al., 2019). Particularly in the social trading subsegment, we observe the trend towards sustainable investment strategies following the current societal discourse for many robo advice providers. However, one should note that robo advice is a service that even traditional banks are increasingly offering in their online banking, through or without cooperations with FinTechs. As Figure 12 shows the assets of German customers managed by robo advisors totaled EUR 10.2 billion at the end of 2021. The German market leader is *Scalable Capital*, followed by *Liqid*, *Quirion* and *Ginmon*.

To conclude the volume estimates for the year 2021 and the application case of the German FinTech market, we display in Figure 13 the sum of the total market volume of the segments financing and asset management over time. We find a steady, linear growth over the years reaching a maximum of 85.3 billion in 2021 in combination with a growth rate of 28 per cent throughout the year 2021. We expect the German FinTech market to establish its position in the market and to further grow. However, the boundaries or demarcation from the traditional banking sector are becoming increasingly blurred in some subsegments due to cooperations or even incorporations with banks.

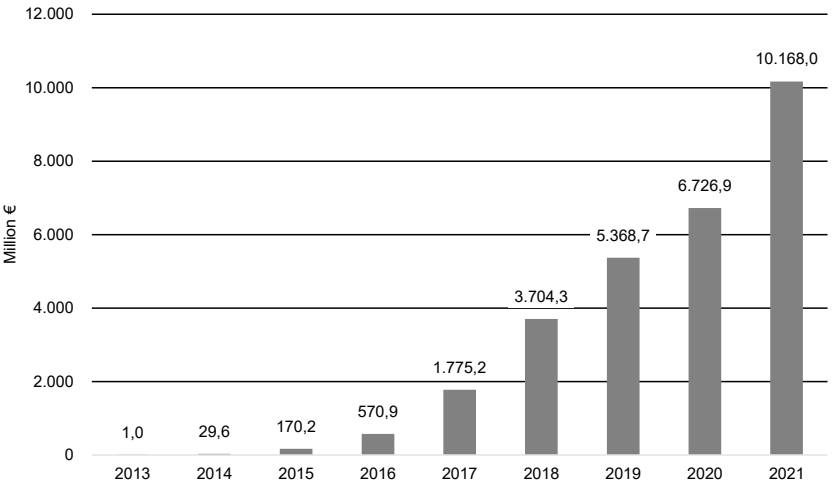

Figure 12: Market volume of the subsegment robo advice over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2021)

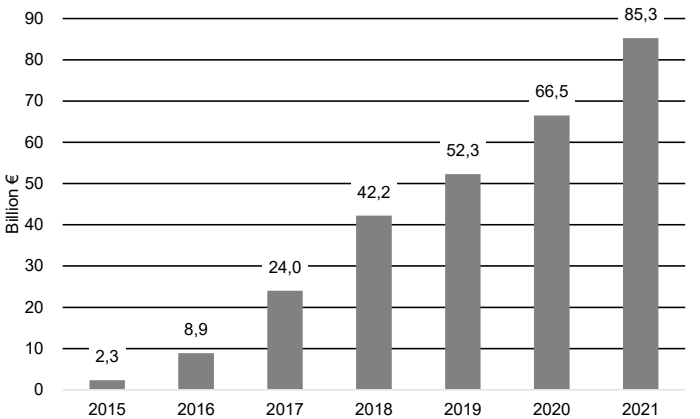

Figure 13: Total market volume of the segments financing and asset management over time (Source: Dorfleitner and Hornuf (2023), own calculations for 2020 and 2021)

IV. Conclusion

The dataset presented is suited to perform descriptive analyses to fully comprehend the complete FinTech market in Germany since its emergence. Especially, the dataset is optimal to obtain a historic perspective. Furthermore, the dataset is useful for everybody interested in the dynamic field of financial technology. Therefore, supervisory authorities, academics as well as practitioners, who need an overview, can benefit from the dataset. Moreover, the nature of the dataset enables researchers to perform further cross-sectional analyses. It provides the possibility of longitudinal analyses of the complete market in Germany to observe trends as well as the maturity of this industry sector.

The entries contain further information that can be used for research that is not necessarily only limited to the market in Germany but related to the entire international FinTech market. Possible concrete research applications are e. g., founder characteristics in network analysis, the origin of the company to account for the geography of start-ups, the operating status as a success indicator as well as for survival analysis.

Additionally, as shown for the year 2021, the total market volumes of particular FinTech segments can be estimated based on the data. While the evidence on the market volumes presented in this report rather was a quick (and necessarily somewhat imprecise) estimate, the next volume investigations should again be based on the whole cross section of FinTechs in Germany. This is a feasible and rewarding (but laborious) task, which due to the freely accessible dataset now can be performed by everyone interested in the German FinTech market.

References

D'Acunto, F./*Prabhala*, N./*Rossi,* A. G. (2019): The promises and pitfalls of robo-advising. The Review of Financial Studies 32(5), 1983 – 2020.

Dorfleitner, G./*Hornuf*, L. (2019): FinTech and Data Privacy in Germany: An Empirical Analysis with Policy Recommendations. Springer, Cham.

Dorfleitner, G./*Hornuf*, L. (2023): Der deutsche FinTech-Markt, in: Thorsten Voß (Hrsg.): Recht der FinTechs. De Gruyter, Berlin.

Dorfleitner, G./*Hornuf*, L./*Kreppmeier*, J. (2023): Promise Not Fulfilled: FinTech, Data Privacy, and the GDPR. Electronic Markets, forthcoming.

Dorfleitner, G./*Hornuf*, L./*Schmitt*, M./*Weber*, M. (2017): FinTech in Germany. Springer, Cham.

Dorfleitner, G./*Hornuf*, L./*Wannenmacher*, L. (2020): Der deutsche FinTech-Markt im Jahr 2020. ifo Schnelldienst 73, 33 – 40.

Dorfleitner, G./*Kreppmeier*, J./*Laschinger*, R. (2022): Dataset of German FinTech companies: A market overview, Mendeley Data, V2, https://doi.org/10.17632/438ytjyzxk.2.

Glaser, F./*Risius*, M. (2018): Effects of Transparency: Analyzing Social Biases on Trader Performance in Social Trading. Journal of Information Technology 33(1), 19 – 30.

Hainz, C./*Hornuf*, L./*Klöhn*, L./*Brauer*, B./*Ehrenfried*, F./*Engelmann*, G. (2017): Die Befreiungsvorschriften des Kleinanlegerschutzgesetzes. ifo Schnelldienst 70(6), 26 – 35.

Hainz, C./*Hornuf*, L./*Nagel*, L./*Reiter*, S./*Stenzhorn*, E. (2019): Die Befreiungsvorschriften des Kleinanlegerschutzgesetzes: Eine Follow-up-Studie. ifo Schnelldienst 72(9), 26 – 37.

Lee, I. Y./*Shin*, Y. (2018): Fintech: Ecosystem, business models, investment decisions, and challenges. Business Horizons 61(1), 35 – 46.

Mollick, E. (2014): The dynamics of crowdfunding: An exploratory study. Journal of Business Venturing 29 (1), 1 – 16.